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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/678,414	10/02/2000	David W. Carlson	NSC1-H1700 [P04797]	4381

33402 7590 11/14/2003

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EXAMINER

KEBEDE, BROOK

ART UNIT PAPER NUMBER

2823

DATE MAILED: 11/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/678,414	CARLSON, DAVID W.	
	Examiner	Art Unit	
	Brook Kebede	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-7,9,10,13-17,19-25,27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 and 17 is/are allowed.
- 6) ☒ Claim(s) 1,2,5-7,10,13-16,19-25,27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 24, 2003 has been entered.

Status of the Claims

2. Claims 1, 2, 5-7, 9, 10, 13-17, 19-25, 27 and 28 are now pending in the application.

Specification

3. The amendment filed on March 25, 2002 in Paper No. 6 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

Applicant amend in the specification in Paragraph 5, Page 6 as follows: "As shown in Fig. 3C, **a layer material 342 that lowers resistance** is formed over planarized polysilicon layer 340." Although there is support for formation of "the layer of third material over planarized layer material," there is no support for a layer material 342 (i.e., the layer of third material) that lowers resistance as the specification as originally filed. Applicant is required to cancel the new matter in the reply to this Office Action.

4. The amendment filed on March 3, 2003 in Paper No. 16 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no

amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

Claim 22 recites the limitation “forming a layer of third material on the planarized layer of the first material, **the third layer of material lowering the resistance of the first material**” in lines 13-14. However there is no support for the limitation “**the third layer of material lowering the resistance of the first material**” in the specification as originally filed.

Claim 25 recites the limitation “The method of claim 24 and further comprising the step of forming a layer of third material on the planarized layer of material, **the layer of third material and the layer of first material being selectively etched during the selectively etching step**” in lines 1-3.

Claim 25 being dependent of claim 24, the selective etching process provides support for selectively etching for the layer of the first material as the specification as originally filed. However, there is no support for the limitation “the layer of third material being selectively etched during selectively etching process” as recited in claim 25. Therefore, there is no support for the limitation “**the layer of third material being selectively etched during selectively etching process**” in the specification as originally filed.

Claim 26 recites the limitation “The method of claim 25 wherein the layer of third material is conductive” in line 1. Although there is support in the specification for the “third material,” there is no support for the third material being “conductive” as the specification originally filed.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 19-22, 23, 25 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 22 recites the limitation “forming a layer of third material on the planarized layer of the first material, **the third layer of material lowering the resistance of the first material**” in lines 13-14. However there is no support for the limitation “**the third layer of material lowering the resistance of the first material**” in the specification as originally filed. Therefore, the subject matter is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 25 being dependent of claim 24, the selective etching process provides support for selectively etching for the layer of the first material as the specification as originally filed. However, there is no support for the limitation “the layer of third material being selectively etched during selectively etching process” as recited in claim 25. Therefore, there is no support for the limitation “**the layer of third material being selectively etched during selectively etching process**” in the specification as originally filed. Therefore, the subject matter is not described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 26 recites the limitation “The method of claim 25 wherein the layer of third material is conductive” in line 1. Although there is support in the specification for the “third material,” there is no support for the third material being “conductive” as the specification originally filed. Therefore, there is no support for the limitation “**the layer of third material is conductive**” in the specification as originally filed. Therefore, the subject matter is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 19, 20, 21, 23 and 26 are also rejected as being dependent of the rejected independent base claim.

7. Applicant’s cooperation is requested in reviewing the claims structure to ensure proper claim construction and to correct any subsequently discovered instances of claim language noncompliance. See *Morton International Inc.*, 28USPQ2d 1190, 1195 (CAFC, 1993).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 2, 5-7, 10, 13-16, 18-25, 27 and 28 rejected under 35 U.S.C. 102(e) as being anticipate by Li et al. (US/6,162,368).

Re claims 1 and 16, Li et al. disclose a method for forming a planarized layer of material on a processed wafer, the wafer having a top surface, the top surface having spaced-apart wafer upper levels and a wafer lower level that lies between the wafer upper levels, the wafer upper levels lying above the wafer lower level, the method comprising the steps of: forming a layer of first material (16) on the top surface of the wafer (10), the layer of first material (16) having a top surface, the top surface of the layer of first material having a first lower level and a first upper level that lies above the first lower level; forming a layer of second material (60) on the top surface of the layer of first material (16); and chemically-mechanically polishing the layer of second material (18) and the underlying layer of first material (16) with a slurry until the layer of second material (18) is all removed from the layer of first material (16) to form the planarized layer of material; and wherein the layer of first material makes an electrical contact with a device on the wafer, the planarized layer of material lying over the wafer upper levels and the wafer lower level (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 2, as applied to claim 1 above, Li et al. disclose all the claimed limitations including the limitation wherein the first lower level lies above the wafer upper level (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 5, as applied to claim 1 above, Li et al. disclose all the claimed limitations including the limitation wherein the planarized layer of material has first thickness over the wafer upper level and, wherein the layer of first material is formed such that the first lower level lies above the wafer upper level by a second thickness that is equal to or greater than the first thickness (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 6, as applied to claim 1 above, Li et al. disclose all the claimed limitations including the limitation the first material as being polysilicon (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 7, as applied to claim 1 above, Li et al. disclose all the claimed limitations including the limitation the second material is being an oxide (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 10 as applied to claim 2 above, Li et al. disclose all the claimed limitations including the limitation step of forming a layer of third material on the planarized layer of material (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 13, as applied to claim 12 above, Li et al. disclose all the claimed limitations including the limitation wherein the planarized layer of material has first thickness over the wafer upper level and, wherein the layer of first material is formed such that the first lower level lies above the wafer upper level by a second thickness that is equal to or greater than the first thickness (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 14, as applied to claim 1 above, Li et al. disclose all the claimed limitations including the limitation the step of doping the layer of first material prior to forming the layer of second material (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 15, as applied to claim 1 above, Li et al. disclose all the claimed limitations including the limitation wherein the layer of first material is doped polysilicon (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 22, Li et al. disclose a method of planarizing a layer of semiconductor material on a processed wafer (10), the wafer having a top surface (not labeled) , the top surface having a

wafer lower level (not labeled) and a wafer upper level (not labeled) that lies above the wafer lower level, the method comprising the steps of: forming a layer of first material (16) on the top surface of the wafer (10), the layer of first material (16) having a top surface (not labeled), the top surface of the layer of first material (16) having a first lower level (not labeled) and a first upper level (not labeled) that lies above the first lower level; forming a layer of second material (18) on the top surface of the layer of first material (16); chemically-mechanically polishing the layer of second material and the underlying layer of first material until the layer of first material is substantially planar to form planarized layer of first material (see Fig. 2D), the planarized layer of first material (16) covering the wafer upper level (not labeled) of the top surface of the wafer (10); and forming a layer of third material (106 or 114) on the planarized layer of the first material (16) (see Fig. 2D), the third layer of material lowering a resistance of the first layer of material (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 19, as applied to claim 22 above, Li et al. disclose all the claimed limitations including the limitation wherein the first lower level lies above the wafer upper level (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 20, as applied to claim 19 above, Li et al. disclose all the claimed limitations including the limitation wherein the planarized layer of material has first thickness over the wafer upper level and, wherein the layer of first material is formed such that the first lower level lies above the wafer upper level by a second thickness that is equal to or greater than the first thickness (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 21, as applied to claim 22 above, Li et al. disclose all the claimed limitations including the limitation wherein the first material is doped polysilicon (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 23, as applied to claim 22 above, Li et al. disclose all the claimed limitations including the limitation wherein the layer of first material makes an electrical contact with a device on the wafer (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 24, Li et al. disclose a method for forming a planarized layer of material on a processed wafer, the wafer having a top surface, the top surface having spaced-apart wafer upper levels a wafer lower level that lies between the wafer upper levels, the wafer upper levels lying above the wafer lower level, the method comprising the steps of: forming a layer of first material (16) on the top surface of the wafer (10), the layer of first material (16) having a top surface, the top surface of the layer of first material having a first lower level and a first upper level that lies above the first lower level; forming a layer of second material (60) on the top surface of the layer of first material (16); and chemically-mechanically polishing the layer of second material (18) and the underlying layer of first material (16) with a slurry until the layer of second material (18) is all removed from the layer of first material (16) to form the planarized layer of material; and wherein the layer of first material makes an electrical contact with a device on the wafer, the planarized layer of material lying over the wafer upper levels and the wafer lower level; selectively etching the planarized layer of material that covers (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 25, as applied to claim 24 above, Lin et al. disclose all the claimed limitations including the limitation the step of forming a layer of third material on the planarized layer of

material, the layer of third material and the layer of first material being selectively etched during the selectively etching step (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 27, as applied to claim 24 above, Lin et al. disclose all the claimed limitations including the limitation wherein the layer of first material and the layer of second material are etched with a slurry that etches the layer of first material and the layer of second material at approximately a same rate (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Re claim 28, as applied to claim 24 above, Lin et al. disclose all the claimed limitations including the limitation wherein all of the layer of second material is removed during the chemically-mechanically polishing step (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).

Allowable Subject Matter

10. Claims 9 and 17 are allowed over prior art of record.

Response to Arguments

11. Applicant's arguments filed on August 14, 2003 have been fully considered but they are not persuasive.

With respect to new matter objection under 35 U.S.C. § 132, applicant argued that the specification in page 5, lines 13-16, and page 5, lines 25-27 provides support for the objected recitations. In response to applicant's argument, the Examiner respectfully disagrees with the applicant's contention because none of the added elements as shown in Paragraph 3 and 4 herein above have support in the specification as **the specification originally filed**.

Therefore, the objections under 35 U.S.C. § 132 is deemed proper.

With respect to the claims rejection under 35 U.S.C. § 112 1st Paragraph, applicant argued that the specification in page 5, lines 13-16, and page 5, lines 25-27 provides support for the rejected claims and the amendment do not introduce a new matter. In response to applicant's argument, the Examiner respectfully disagrees with the applicant's contention because none rejected claims as shown in Paragraph 3 and 4 herein above have support in the specification as **the specification originally filed.**

Therefore, the claims rejection under 35 U.S.C. § 112 1st Paragraph is deemed proper.

With respect to claims rejection under 35 U.S.C. § 102(e), applicant argued that "step the Li reference teaches two chemical-mechanical polishing steps: a first step that uses slurry 50a to remove native oxide layer 18, and a second step that uses slurry 50b to remove polysilicon layer 16. However, neither of the two chemical-mechanical polishing steps taught by Li can be read to be the chemically-mechanically polishing step required by claim 1..."

In response to the applicant's argument, the Examiner respectfully submits that such an argument is not commensurate with the scope of the claims, in particularly, as stated above. The Examiner respectfully submits that Li et al. '368 teach all the claimed limitation as shown in Paragraph 9 herein above. In addition, the rejected claim does not call for either single step or plurality step of CMP it just simply recites "chemically-mechanically polishing the layer of second material (330) and the underlying layer of first material (320) with a slurry until the layer of second material (330) is all removed from the layer of first material (320)." And Li et al. teaches that also. Whether one slurry used or multiple slurry utilized is irrelevant the rejected claim is not distinctive from the prior art.

Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. See *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). See also *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

Applicant further argued that “Li fails to teach or suggest the formation of a layer of third material, claim 22 is not anticipated by the Li reference. In addition, since claims 19-21 and 23 depend from claim 22, claims 19-21 and 23 are not anticipated by Li for the same reasons as claim 22. With respect to claim 24, this claim recites, in part, selectively etching the planarized layer of material that covers the wafer upper levels and the wafer lower level of the top surface of the wafer.” In rejecting claim 24, the Examiner stated, with reference to the selectively etching step, selectively etching the planarized layer of material that covers (see Figs. 2A-2I and Col. 4, line 37 through Col. 6, line 54).” Applicant respectfully has been unable to identify the steps in Li that the Examiner believes reads on the selectively etching step, and has been otherwise been unable to find any discussion in Li that teaches or suggests that polysilicon layer 16 (the layer of first material) is selectively etched when polysilicon layer 16 covers the upper levels of regions 14 as required by claim 24. As a result, claim 24 is not anticipated by Li. In addition, since claims 25 and 27-28 depend either directly or indirectly from claim 24, claims 25 and 27-28 are not anticipated by Li for the same reasons as claim 24.”

In response to the applicant’s argument, the Examiner respectfully submits that such an argument is not commensurate with the scope of the claims, in particularly, as stated above. The Examiner respectfully submits that Li et al. ‘368 disclose formation of the third layer (106) (see

Fig. 2E). Furthermore, with respect to selectively etching step, the argument is moot because applicant fail to provide support for the limitation. However, Lin et al. '368 also disclose the selectively etching step for the third material layer as shown in Figs. 2E and 2F.

Therefore, the rejection under 35 U.S.C. §102(e) is deemed proper.

Conclusion

12. THIS ACTION IS MADE **NON-FINAL**.

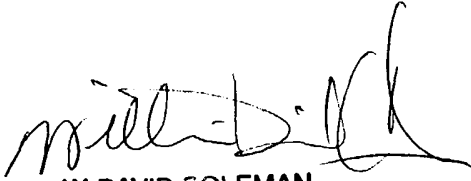
Correspondence

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (703) 306-4511. The examiner can normally be reached on 8-5 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Brook Kebede
BK
November 12, 2003


W. DAVID COLEMAN
PRIMARY EXAMINER